BCC Quick Reference

Getting Started

- Start a Technician Interface session with the router by connecting a PC or ASCII terminal to the router's console port or through a dial-up connection.
- Enter **Manager** at the login prompt, then enter **bcc** to start a BCC™ session, then enter **config** to enter configuration mode.
- A BCC configuration is a hierarchy of *objects* representing interfaces, protocols, and other entities. The hierarchy starts at the root object (*box* for AN®, ARN™, BN®, Passport™ 2430, and Passport 5430; *stack* for ASN™ and System 5000™) and cascades down to lower objects (see Figure 1 on the next page).
- Objects have attributes called *parameters*, with values that you can change. Some objects have required parameters; the BCC prompts you to enter values for required parameters.
- BCC indicates when you must configure one object prior to another. For example, if you have not configured IP on an interface and you try to add global OSPF from box level (**ip; ospf**), a message tells you to first configure IP on at least one interface.
- Enter the **?** command to display a list of the objects that you can configure next. Enter the **info** command to display the parameters and their values for the current object.
- Some protocols (for example, IP) have both *global* and *interface-level* objects that configure different aspects of the protocol.
- Configure interface-specific protocols by configuring the interface first, then the protocol. For example, configure an *ethernet* interface, then add *ip*.
- Configure a new object by entering only the object's name. For example, to configure Telnet, enter **telnet** (*not* **config telnet** or **set telnet**).
- Configure global protocols (for example, telnet) that apply to the whole router at the *box* or *stack* prompt.
- Configure an *ethernet* interface on a specific connector and slot. For example, enter **ethernet slot 2 connector 1** or **eth 2/1**. A slash (**/**) must separate parameter values.

- Configure *ip* at the interface level with a specific IP address and subnet mask. For example, enter either of these commands:
  -- ip address 192.184.68.24 mask 255.0.0.0
  -- ip 192.184.68.24/255.0.0.0
- Enter **show** commands (for statistical information) and **help** commands at any level of the object hierarchy. You do not need to change to another mode to use these commands.

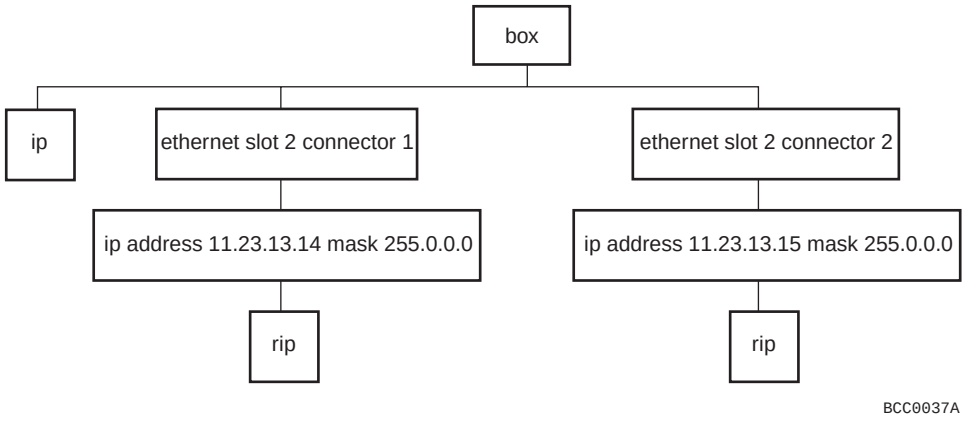

Figure 1. Hierarchy of BCC Objects

Sample Session

To create the sample configuration shown in Figure 1 on a BN router with an Ethernet link module in slot 2, enter the following BCC commands. Notice how each BCC prompt contains the BCC identifier of the object just configured.

Command	Comment
`box#` **ethernet slot 2 connector 1**	Configures ethernet 2/1 using a fully specified interface location.
`ethernet/2/1#` **ip 11.23.13.14/8**	Configures ip/11.23.13.14/255.0.0.0 using a decimal mask value. The BCC automatically configures the global ip object when you configure the first ip interface on the box.
`ip/11.23.13.14/255.0.0.0#` **rip**	Configures RIP on ip/11.23.13.14. No parameter values are required.
`rip/11.23.13.14#` **back**	Moves back one level closer to box or root level.
`ip/11.23.13.14/255.0.0.0#` **back 2**	Moves back two levels to box level.
`box#` **eth 2/2**	Configures ethernet 2/2 using abbreviated syntax. (Slashes between required parameter values only.)

(continued)

`ethernet/2/2#` **ip address 11.23.13.15 mask 255.0.0.0**	Configures ip/11.23.13.15/255.0.0.0 using dotted-decimal notation for the mask value.
`ip/11.23.13.15/255.0.0.0#` **rip**	Configures RIP on ip/11.23.13.15/255.0.0.0.
`rip/11.23.13.15#` **box**	Jumps to root level. You can use this command from any location in the object hierarchy.

Common BCC Operations

The following table contains common tasks with the corresponding command syntax. It also provides examples.

Task	BCC Command Syntax	Examples
Start the BCC from the Technician Interface prompt.	**bcc**	**bcc**
Enter configuration mode from the system prompt.	**config**	**config**
Exit the configuration mode. Exit the BCC.	**exit**	`box#` **exit** `bcc>` **exit**
Configure a physical interface.	At the `box#` prompt, use one of the following formats: *<interface>* **slot** *<slot>* **connector** *<connector>* or *<interface_type> <slot>***/***<connector>*	 **mct3 slot 2 connector 1** **mc 3/1**
Configure a protocol with default values.	*<protocol> <required_parameter> <value>* ...	**ip address 1.2.3.4 mask 255.0.0.0** **ip 1.2.3.4/255.0.0.0** **ip address 1.2.3.4 mask 8** **ip 1.2.3.4/8**
Modify parameter values.	*<parameter> <new_value>* ...	**cache-size 64** or **ca 64**
Go to a configured object from any location in the tree.	*<unique_id>*	**ethernet/9/1** **ip/1.2.3.4/255.0.0.0** **bgp**
Find the ID of any object.	**show config -all** **lso -r**	**show config -all** **lso -r**
Display the command history list.	**history**	**history**
Save the active configuration as a bootable (binary) configuration file on the router's flash memory card.	**save config** *<volume>:<filename>*	**save config 1:bn_config** **Note**: Be sure to save boot configuration files with a test name before saving them with the router's default file name, *config*.

Task	BCC Command Syntax	Examples
Save the active configuration as a sourceable (ASCII) configuration file on the router's flash memory card. This configuration file can be imported using the BCC source command.	**show config -all [-file *<filename>*]**	Show the total device configuration in BCC syntax. If issued with the **-file** flag, save the output to *<filename>* on the default volume.
Disable, enable, or delete the current object.	**disable** **enable** **delete**	`ip/1.2.3.4/255.0.0.0#` **disable** `ip/1.2.3.4/255.0.0.0#` **enable** `ip/1.2.3.4/255.0.0.0#` **delete**
Disable, enable, or delete an object configured below the current object.	**disable** *<BCC_instance_id>* **enable** *<BCC_instance_id>* **delete** *<BCC_instance_id>*	`ft3/3/4#` **disable t1/3/4/15** `ft3/3/4#` **enable t1/3/4/15** `ft3/3/4#` **delete t1/3/4/15**

Useful BCC Commands

The following table lists BCC commands by category with the corresponding command syntax and task that you want to complete.

Category	BCC Command	Task
Help	**help**	List BCC Help features.
	help *<item>*	Display Help for the specified item (command, object, or parameter). For example: **help lso** **help snmp** **help bofl**
	help commands [-more]	List all system commands. Display terse command descriptions by adding the optional **-more** flag.
	help tree [-all]	Show the entire tree of configurable objects. If issued without the **-all** flag, show all objects configurable from your current location in the tree.
	?	List the names of all objects, parameters, and commands that you can enter at this level. (The BCC immediately displays output upon detecting the **?** character, which it does not display.)
	<object> **?**	Show the configuration syntax and list the parameters of an object that you can configure from your current location in the configuration tree.
	<parameter> **?**	Display supported values for this parameter of the current object.

Category	BCC Command	Task
Navigation	**back**	Go back one level.
	pwc	Show full context, starting from root level.
	box	Return to the top level of the router configuration (AN, BN, ARN, Passport 2430, and Passport 5430).
	stack	Return to the top level of the router configuration (ASN and System 5000).
	<unique_ID>	Go directly to the context of any object in the configuration tree.
Configuration data	**show config -all [-file *<filename>*]**	Show the total device configuration in BCC syntax. If issued with the **-file** flag, save the output to *<filename>* on the default volume.
	info	List values assigned to parameters of the current object.
	lso [-r | *<pattern>*]	Show objects configured at the next (branch) level. If issued with the **-r** flag, show objects configured at all descending branch levels. If issued at the box# prompt, show all objects in the configuration and the paths to those objects. If issued with a “glob-style” string pattern (using ***** and **?** wildcards, and no regular expressions), list only configured objects in the current context that match the specified pattern. For example: **lso *o*** **lso *a*** **lso “ip/1.2.?.?/*”**
	check [-recursive | -all]	Check the current context by default for unsatisfied dependencies (requiring additional configuration). The check command operates only in config mode. • Use the "-recursive" option to check for dependencies related to the current context and all of its subcontexts. • Use the "-all" option to check for dependencies associated with all configured contexts.

Command Shortcuts

- To recall any command from the history list, press the up arrow (or [Control]-p) or the down arrow (or [Control]-n).
- Enter the first few letters of any command and press [Tab] to complete your partial entry. The BCC automatically completes the string for any command for which it finds a unique match in the current context. If you want to complete the string *and* execute it, press [Enter] instead of [Tab]. If the BCC cannot complete the string based on your partial entry, your available choices or an error message displays. You can also use this feature to simplify the entry of object names/IDs and parameter names/values.
- To reduce typing, use commands such as **lso** to display existing objects and then copy and paste their *instance ID* (for example, **ip/192.33.16.4/255.255.255.248**).

Help Tips

The following list provides tips for using the BCC Help system. You can find support for these help tips in the "*Useful BCC Commands"* section.

- To see an overview of the Help system, enter **help** or **help help**
- To see a list of all system (nonconfiguration) commands, enter **help commands** or **help commands -more**
- To see Help for a specific command, enter **help** *<command>*; for example, **help compact** or **help ip**
- To see text definitions for the parameters of any object, enter **help** *<object_name>*; for example, **help ip**
- To see text definitions for a parameter of the object at your current location in the object hierarchy, enter **help** *<parameter_name>*; for example **help bofl**
- When the BCC displays a list of choices for **help** on a configuration object, copy and paste the command line that best describes the path from root to that object; for example, **help box ip** (global IP) or for interface IP, **help box ethernet ip** or **help box serial ppp ip**

Show Command Syntax

To display a list of show commands from any level in the BCC object hierarchy, enter **show** *<protocol>* **?**. To learn more about any show command option and its syntax, use the question mark (**?**) command, as follows:

```
bcc> show ppp ?
       alerts       disabled  interfaces   ipx    lqr
       bad-packets  enabled   ip           line
bcc> show ppp lqr ?
       config       stats
bcc> show ppp lqr config ?
       show ppp lqr config[-name <arg>] [-slot <arg>]
```